Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

"Framheim" are of great interest. They resulted in determining that the Bay of Whales has a snow-covered bottom.

Simultaneously with our work on land, scientific observations were made on board the *Fram* by Captain Nilsen and his companions which probably stamp this expedition as the most valuable of all. The *Fram* made a voyage from Buenos Aires to the coast of Africa and back, covering a distance of 8,000 nautical miles, during which a series of oceanographical observations was made at no less than sixty stations. The total length of the *Fram's* journey equaled twice the circumnavigation of the globe. The *Fram* has successfully braved dangerous voyages which made high demands upon her crew. The trip out of the ice region in the fall of 1911 was of an especially serious character. Her whole complement then comprised only ten men. Through night and fog, through storm and hurricane, through pack ice and between icebergs the *Fram* had to find her way. One may well say that this was an achievement that can be realized only by experienced and courageous sailors, a deed that honors the whole nation.

In conclusion, you will allow me to say that it was these same ten men, who on Feb. 15, 1911, hoisted the flag of their country, the Norwegian flag, on a more southerly point of the earth than the crew of any other ship whose keel ever cleft the waves.* This is a worthy record in our record century. Farthest north, farthest south did our dear old *Fram* penetrate.

DEVELOPMENT AND STATE OF PROGRESS OF THE UNITED STATES PORTION OF THE INTERNATIONAL MAP OF THE WORLD

BY

W. L. G. JOERG

(Map facing p. 842.)

During the visit of the Transcontinental Excursion of this Society to the United States Geological Survey in Washington on October 14, 1912, the members were given every opportunity to acquaint themselves with the present state of progress of the portion of the International Map of the World being compiled by the Survey. In view of the fact that this information has not been easily accessible in print, the following notes, covering also the history of the development of that portion, together with the accompanying map, in the preparation of both of which the Geological Survey has given generous assistance, may prove of interest.

---

* The *Fram* penetrated to the head of the Bay of Whales, 78°41′ S. (*New York Times*, March 9, 1912.)

The first steps taken by the Geological Survey to compile a general map of the United States similar in scope to the International Map antedated by several years the meeting of the International Map Committee in London in November, 1909. As early as 1903 or 1904 the Survey had prepared in manuscript contour maps on the scale of 12 miles to the inch of Colorado, New Mexico, Arizona, Wyoming, Delaware, Maryland, Virginia and West Virginia.* Actuated by Professor Penck's appeal at the Eighth International Geographic Congress in Washington in September, 1904, that the United States follow the example set by the British, French and Prussian War Offices with regard to maps of other parts of the world and undertake the preparation of a map of North and South America on the millionth scale,† Dr. Henry Gannett was authorized by the then director of the Survey, Dr. Walcott, to prepare a number of maps designed to become part of the United States portion of the International Map.‡ The Twenty-Sixth Report of the Survey (for 1904-05) correspondingly refers (p. 159) to the "compilation of maps of portions of the United States on a manuscript scale of 12 miles to the inch with the purpose of publishing them in sheets on a scale of 1 : 1,000,000" as part of the office work of the Division of Geography and Forestry for that year. The two subsequent reports give slightly different accounts of the purpose of the map. The Twenty-Seventh Report (p. 21) refers to progress made in the "assembling of data for the preparation of geologic maps of the States, or of groups of States, on the scale of 1 : 1,000,000." The Twenty-Eighth Report (for 1906-7), the first published under the present director, Dr. George Otis Smith, contains the first definite announcement (p. 4) of the fact that the Survey had undertaken the preparation of a map of the United States according to the scheme "adopted by international agreement," to which is added, however, the statement that this map "will be employed primarily by the Survey as a base for a general geologic map of the United States, but the base will be designed with a view to all the manifold uses which Federal and State officials and the people have for a general map."

---

* Twenty-Fifth Annual Report, p. 237.

† Report Eighth Intern. Geogr. Congr., pp. 555-557.

‡ Bailey Willis: The International Millionth Map of the World, *Natl. Geogr. Mag.*, Vol. 21, 1910, p. 127.

The next reference to the progress made on the United States portion of the International Map is found in a letter from Dr. Gannett to the President of the Ninth International Geographic Congress at Geneva, dated June 30, 1908.* In it mention is made of the compilation of manuscript contour maps of different states on the scale of 12 miles to the inch, the following states being designated as completed in addition to those enumerated in the Twenty-Fifth Report: Ohio, Oklahoma, Kansas, Nebraska and Utah. Arizona, Wyoming (these two were given as completed in the Twenty-Fifth Report) and California are reported as almost complete, and Oregon Nevada, Idaho and South Dakota as partially compiled. A map of the United States showing the areas compiled, together with a photographic reduction to 1 : 1,000,000 of the map of Colorado, accompanied this letter.

These state contour maps, although covering about twenty-eight per cent. of the area of the United States, were finally not destined, however, to be used as direct bases for the International Map owing to the fact that the Survey committee entrusted with this matter subsequently decided that they were not adequate for this purpose. Nevertheless, their compilation was in no way in vain. Their preparation and the various discussions of the subject resulted in the decision of the Survey to begin anew the compilation of sheets of an international map, in the belief that in a short time the standardizing of this undertaking would be assured. The work was entrusted to the Topographic Branch, under the general supervision and direction of R. B. Marshall, Chief Geographer. A. F. Hassan, cartographer, was placed in direct charge, and in June, 1908, the compilation of the first sheets of the United States portion of the International Map of the World was begun. Photographic copies of the sheets were exhibited at the meeting of the International Map Committee in London in November, 1909. It was a source of gratification to the Survey that the size, the general style and, in the main, the conventional signs used on these sheets were adopted by the committee.

The rules governing the preparation of the International Map once laid down the progress of the United States portion could advance rapidly.* Only a little over two years elapsed after the London meeting before the first sheet, North K-19, was issued in February, 1912. This was a preliminary edition without hypsometric coloring: the final edition has just been published in October.

---

* Compte Rendu, Neuvième Congr. Intern. de Géogr., Geneva, 1909. Vol. I, pp. 333–334.

Before referring to this sheet a few words with regard to the method of compiling the map and its present state of progress may be of interest.

The map is compiled on the scale of 1 : 500,000 as a base map, *i. e.*, the topological element (drainage, boundaries, railroads, towns, etc.) alone, exclusive of relief, is prepared. The area thus completed is shown in stippling on the accompanying index map (on which the Maryland portion of Sheet J-17 and the Louisiana portion of Sheet H-16 should also be stippled). The unit for compilation is the international sheet.† Frequent demands for base maps of states, however, have led, in some cases, to the compilation of state portions of an international sheet prior to its completion as a unit. The proper portions of the relevant international sheets are then assembled by states to be reproduced on the same scale by photo-lithography and published in black and white as state base maps. State base maps on the scale of 1 : 500,000 have already been published of the following states, as will be seen on the accompanying map: Vermont, Indiana, Illinois, Iowa, Minnesota, Mississippi, Georgia.‡ Other base maps are in course of publication of North Carolina, Wisconsin, Michigan, Connecticut, Massachusetts, Rhode Island, Tennessee, Alabama, Wyoming, New York, Pennsylvania and Florida.

The complete base material has been compiled for Sheets L-15, K-16, K-17, K-18, J-18, I-16, I-18, H-16, H-17 and G-17; these are indicated on the accompanying map by marginal shading. In their manuscript form these sheets still lack relief. This element is compiled on the same scale as the base map, 1 : 500,000, not on the original drawing, however, but upon a lithograph of it. The original drawing is thus available for reproduction as a base map in whatever form desired. The relief and the base sheets are then each reduced to the scale of 1 : 1,000,000, engraved and combined to form a complete sheet of the International Map.

---

* Subsequent reports of progress are given in the Thirtieth Report, p. 88, the Thirty-First Report, p. 89, and the Thirty-Second Report, p. 122.

† The legend on the accompanying map should correspondingly be corrected to read under (b): "Base sheets (scale 1:500,000) of the International Map completed, but not yet published."

‡ These are sold by the Survey at the following prices: Vermont, 10 cts.; Indiana, 15 cts.; Iowa and Mississippi, 20 cts. each; Illinois and Georgia, 25 cts. each; Minnesota, 40 cts.

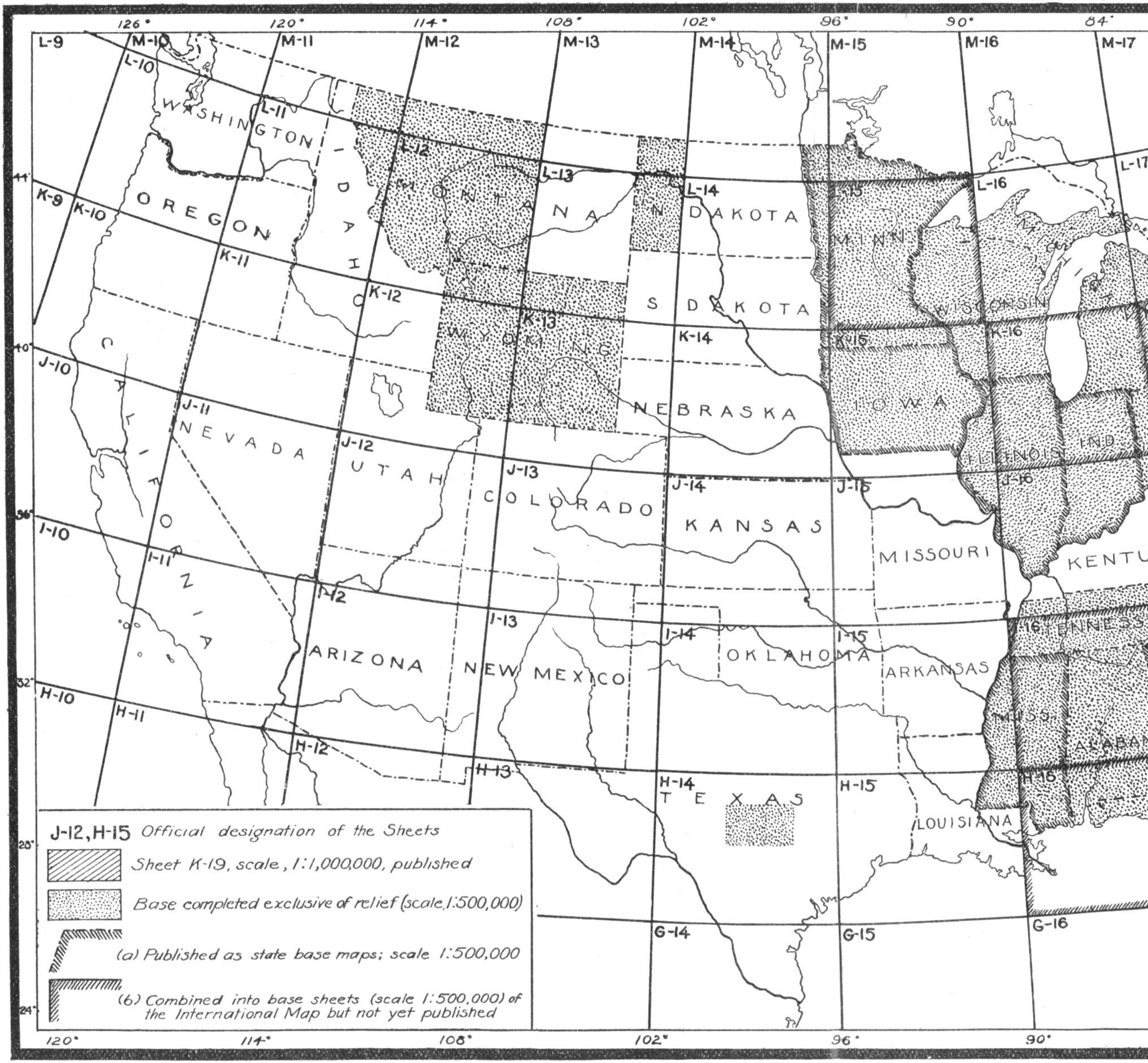
The compilation of the United States portion of the International Map is rendered difficult by the lack of uniform sources. For the five-eighths of the United States of which no topographic sheets exist use is made of various sources. An important source are the numerous maps accompanying the publications of the Survey itself and of the organizations of which it is an outgrowth, as well as of the various state geological surveys. For the thirty odd public land states the maps of the General Land Office are available. The state maps on the scale of 1 : 760,320 issued by this office are not used in the compilation: reference is made to the township plats and the original maps on a larger scale. Where no other material is available recourse is had to county maps and atlases. Railroad profiles supplement the elevations determined by the Geological and the Coast and Geodetic Survey. The coast line is taken from the detailed charts published by the latter organization, and the ocean floor bordering the continent is compiled from the soundings on the charts both of the Coast and Geodetic Survey and of the Hydrographic Office.

It is this relative inaccessibility of the source material, coupled with the relatively large scale of the map and the requirement that certain elements, notably relief, be represented on it, which make the publication of this map of the United States so important. The best general maps of the United States heretofore available, those in such standard atlases as the Stieler, the Andree, the Vivien de St. Martin, although thoroughly scientific compilations, could not, because of their necessarily small scale, satisfy the geographer's every need. A general large-scale map of the United States has been a long-felt want.

How admirably the present map fills this need is evident from a perusal of the sheet just published.* For the first time a representation of real geographic value is here available of so important a part of the United States as central eastern New England. Although belonging to the oldest settled portion of the country, a part of the territory shown on this sheet is here even represented adequately for the first time, irrespective of scale. This is New Hampshire, between 43° and 44° N. Of this region, which includes the southern part of the White Mountains, no topographic sheets, except the Winnepesaukee and Dover sheets, exist, and no generally accessible representation with an adequate treatment of relief has been available. The main source of information in the compilation of this district was the

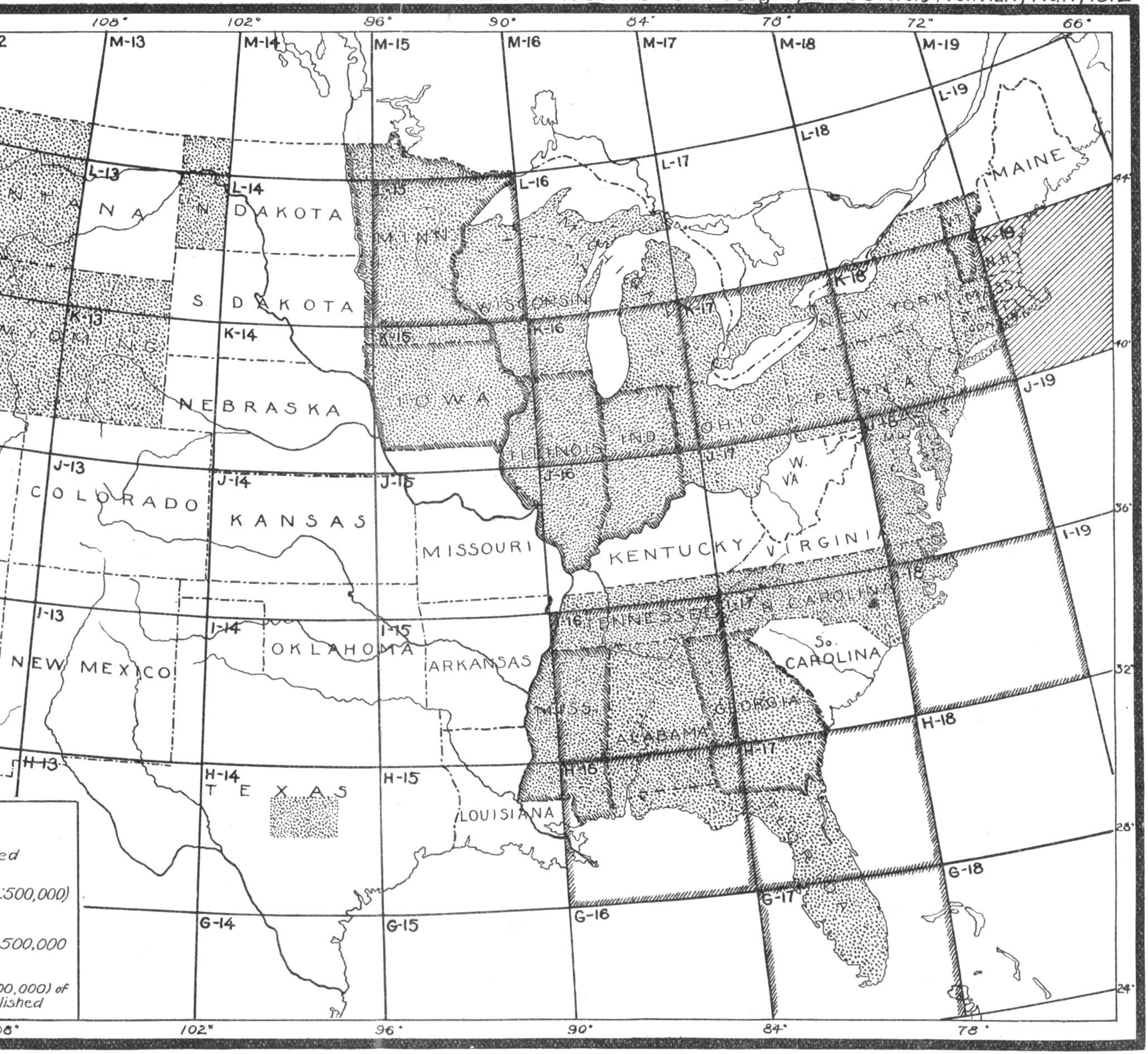
---

* Sold by the Survey at 40 cts.



MAP SHOWING THE ARRANGEMENT AND STATE OF PROGRESS OF THE SHEETS OF THE INTERNATIONAL MAP (

Bulletin of the American Geographical Society, Vol. XLIV, No. 11, 1912



AND STATE OF PROGRESS OF THE SHEETS OF THE INTERNATIONAL MAP OF THE WORLD FOR THE UNITED STATES.

Atlas of New Hampshire on the scale of 2½ miles to the inch by C. H. Hitchcock, the head of the former geological survey of that state. In the representation on the new sheet of relief below 100 meters, furthermore, the Survey has fortunately made use of the latitude allowed by the international agreement* and added the 50 meter contour. A striking element of the sheet is the representation of the ocean floor. The consistent use of the 100 meter interval for the isobaths has produced a clearer picture of the continental shelf in this region than any other heretofore available. Additional valuable elements represented on this sheet which are not generally shown on maps of this nature are: main roads, electric railways, and two classes of railroads, distinction being made between single and double or more track railroads. In the representation of railroads, whose anthropogeographic importance was recognized in the international agreement by requiring this very distinction, the use of a heavier line, even if not as heavy as that shown on the model sheet accompanying the international agreement (cf. *Geogr. Journ., ut supra*), might have been of advantage. The choice of a conventional symbol, too, for cities of less than 500,000 inhabitants may, especially in the case of our extensive American cities, lead to misconceptions. Thus the area between Cambridge and Boston appears uninhabited. This fact, too, together with the unfortunate selection of the State Capitol as the center of the circle representing it makes Providence, R. I., appear an inland city with its nucleus lying to the north, instead of to the south, of the Union Station. These geographic anomalies would be obviated by actually representing the built-up areas, by shading, for instance. The examples cited prove that such a representation is not beyond the range of expression of the map as determined by its scale.

These slight defects are entirely secondary, however, and in no way detract from the fundamental importance and value of the map. As has been seen, many of the valuable features of the map are due to the excellent requirements of the international agreement (mainly, let it be repeated, the one making obligatory the representation of relief by hypsometric coloring) which cannot but guarantee its high geographic quality. But it is equally true that the excellence of Sheet North K-19 is due in no small measure to the efficient work of the Geological Survey. A comparison of this sheet with the other sheets hitherto published, North K-35, M-31, O-29, O-30 (the latter two preliminary proofs) and South H-34, without being invidious, will readily show this. The representation of all isobaths at an interval of 100 meters compares favorably with their absence below 200 meters on sheets North K-35 and O-29, as does the maintenance of the 100 meter interval for contours up to 600 meters with the use of the 200 meter interval on sheets North O-29, O-30 and K-35. The technical reproduction, too, is worthy of high praise. In delicacy of execution it may well be considered the best among the sheets hitherto issued.

---

* *Geogr. Journ.*, Vol. 36, 1910, pp. 179-184.

The publication of the first sheet of the map of the United States as a part of the International Map of the World will thus be seen to be a cause for congratulation on the part of the geographic world. Its completion within reasonable time and the maintenance of the standards set by its founders are insured by the high efficiency of the Geological Survey.

THE ORIGIN OF THE HIMALAYA MOUNTAINS*

The value of this paper lies in its application of mathematical analysis to the investigation of features of the earth's surface. The facts adduced from a consideration of the geodetic evidence applied to the genesis of the Himalayan uplift may, in the main, be summed up in the hypothetical existence of a sub-crustal rift that is possibly in the course of present widening towards the north.

The following are phenomena of observation:

1. A rock trough filled with alluvium traverses northern India.
2. The edges of the trough are parallel.
3. A line of deficient density, presumably in the sub-crust, is found to traverse the whole trough.
4. The earth's surface north of the trough is heavily wrinkled.
5. The surface of the trough is not wrinkled.
6. The mountain wrinkles north of the trough are compensated by deficiencies of density beneath them (but these deficiencies are not comparable in degree with the deficiency underlying the line just south of the base of the mountains).
7. The trends of the main granite ranges of the Himalayas, Karakoram, and Hindu Kush, as well as of the minor ranges, are parallel to the line of low density and to the edges of the alluvial belt.
8. The mountain folds north of the trough are overthrust towards the south.

The Indo-Gangetic alluvial belt is well defined. It separates the tertiary formations lying to the north from the pre-tertiary table-land forming the Indian peninsula. The parallelism of its edges constitutes a feature of particular interest. This is revealed on the map by the trend of the Himalayan, Hindu

---

*On the Origin of the Himalaya Mountains. A Consideration of the Geodetic Evidence, by Colonel S. G. Burrard. 26 pp. Map. *Prof. Paper* No. 12, Survey of India, Calcutta, 1912.